

R E M A R K S

The outstanding Office Action of May 27, 2004 rejects claims 1, 9, 10, 28 and 29 under 35 U.S.C. 102(b) and claims 2 through 8, 22 through 27 and 30 through 38 under 35 U.S.C. 103(a). However, the outstanding Office Action does indicate that claims 11 through 21 contain allowable subject matter and that with amendment claims 11 through 21 would be allowed. The application has been amended in response to the Examiner's comments and is now believed to be in condition for allowance.

Specifically, newly submitted independent claim 39, claims 1 and 11 combined in rewritten form, defines an energy transfer multiplexer to control the flow of energy through an energy conversion system coupled between a first energy source/load and a second energy source/load comprising a bi-directional inverter including a first plurality of energy transfer control elements and a second plurality of energy transfer control elements operatively coupled by a resonant transfer link to selectively control the direction of energy flow between the first and second plurality of energy transfer control elements to control the operation of the energy conversion system in response to a plurality of predetermined conditions. The energy transfer multiplexer further includes a plurality of sensors including sensors coupled between a logic section and the first plurality of control elements, the second plurality of control elements and the resonant transfer link to sense the voltage levels of each of the first plurality of control elements and each of the second plurality of control elements and the voltage level across the resonant

transfer link and to generate voltage level signals corresponding to each voltage level and to feed the voltage levels signals corresponding to each voltage level to the logic section for processing and to generate control signals fed to the first and second plurality control elements to control the flow of energy between the first energy source/load to the second energy source/load.

As noted by Examiner Nguyen, none of the references either teach or suggest the elements claimed in newly submitted independent claim 39. Accordingly, newly submitted independent claim 39 is believed allowable and such is respectfully requested.

Moreover, dependent claims 2 through 10, 12 through 18, 20 through 38 and 40 depend either directly or indirectly from newly submitted independent claim 39. While each contains additional elements, each of these dependent claims contains all the elements of newly submitted independent claim 39 and therefore is also believed in condition for allowance.

Newly submitted independent claim 41, claims 1 and 9 combined in rewritten form, defines an energy transfer multiplexer to control the flow of energy through an energy conversion system coupled between an energy source and an energy load comprising a bi-directional inverter including a first plurality of energy transfer control elements and a second plurality of energy transfer control elements operatively coupled by a resonant transfer link including a series connected resonant conductor and resonant capacitor to selectively control the direction of energy flow between the first and second plurality of energy transfer control

elements to control the operation of the energy conversion system in response to a plurality of predetermined conditions. The energy transfer multiplexer further includes a ground energy transfer control element coupled between the second plurality of energy transfer control elements and the resonant transfer link, and ground to selectively increase the charge on the resonant capacitor.

None of the references either teach or suggest the elements claimed in newly submitted independent claim 41. Accordingly, newly submitted independent claim 41 is believed allowable and such is respectfully requested. Specifically, none of the references show a means for generating a voltage gain.

Moreover, dependent claim 42 depends from newly submitted independent claim 40. While it contains additional elements, this dependent claim contains all the elements of newly submitted independent claim 40 and therefore is also believed in condition for allowance.

Newly submitted independent claim 43, a variation of claims 1 and 9 combined in rewritten form, defines an energy transfer multiplexer to control the flow of energy through an energy conversion system coupled between an energy source and an energy load comprising a bi-directional inverter including a first plurality of energy transfer control elements and a second plurality of energy transfer control elements operatively coupled by a resonant transfer link including a series connected resonant conductor and resonant capacitor to selectively control the direction of energy flow between the first and second plurality of energy transfer control elements to control the operation of the energy conversion system in

response to a plurality of predetermined conditions. The energy transfer multiplexer further includes a ground energy transfer control element coupled between the first plurality of energy transfer control elements and the resonant transfer link, and ground to selectively decrease the charge on the resonant capacitor.

None of the references either teach or suggest the elements claimed in newly submitted independent claim 43. Accordingly, newly submitted independent claim 43 is believed allowable and such is respectively requested.

Moreover, dependent claim 44 depends from newly submitted independent claim 43. While it contains additional elements, this dependent claim contains all the elements of newly submitted independent claim 43 and therefore is also believed in condition for allowance.

Newly submitted independent claim 45, claims 1 and 10 combined in rewritten form, defines an energy transfer multiplexer to control the flow of energy through an energy conversion system coupled between an energy source and an energy load comprising a bi-directional inverter including a first plurality of energy transfer control elements and a second plurality of energy transfer control elements operatively coupled by a resonant transfer link including a series connected resonant conductor and resonant capacitor to selectively control the direction of energy flow between the first and second plurality of energy transfer control elements to control the operation of the energy conversion system in response to a plurality of predetermined conditions. A first ground energy transfer control

element is coupled between one side of the resonant transfer link and ground to selectively reverse polarity on the resonant capacitor.

None of the references either teach or suggest the elements claimed in newly submitted independent claim 45. Accordingly, newly submitted independent claim 45 is believed allowable and such is respectively requested.

Newly submitted independent claim 46, a variation of claims 1 and 9 combined in rewritten form, defines an energy transfer multiplexer to control the flow of energy through an energy conversion system coupled between an energy source and an energy load comprising a bi-directional inverter including a first plurality of energy transfer control elements and a second plurality of energy transfer control elements operatively coupled by a resonant transfer link including a series connected resonant conductor and resonant capacitor to selectively control the direction of energy flow between the first and second plurality of energy transfer control elements to control the operation of the energy conversion system in response to a plurality of predetermined conditions, and further including at least one ground energy transfer control element coupled between one side of the resonant transfer link and ground such that when voltage out is substantially equal to or greater than voltage in the energy transfer multiplexer operates with a voltage gain.

None of the references either teach or suggest the elements claimed in newly submitted independent claim 46. Accordingly, newly submitted independent claim 46 is believed allowable and such is respectively requested.

Newly submitted independent claim 47, a variation of claims 1 and 10 combined in rewritten form, defines an energy transfer multiplexer to control the flow of energy through an energy conversion system coupled between an energy source and an energy load comprising a bi-directional inverter including a first plurality of energy transfer control elements and a second plurality of energy transfer control elements operatively coupled by a resonant transfer link including a series connected resonant conductor and resonant capacitor to selectively control the direction of energy flow between the first and second plurality of energy transfer control elements to control the operation of the energy conversion system in response to a plurality of predetermined conditions, further including a first ground energy transfer control element coupled between one side of the resonant transfer link and ground and a second ground energy transfer control element coupled between the opposite side of the resonant transfer link and ground to selectively increase and decrease the voltage on the resonant capacitor.

None of the references either teach or suggest the elements claimed in newly submitted independent claim 47. Accordingly, newly submitted independent claim 47 is believed allowable and such is respectfully requested.

In view of the amendments contained herein and the discussion in support thereof, allowance of this application is respectfully requested.

Notwithstanding, in the event that this response does not completely and fully address the matters and issues set forth in the outstanding Office Action,

Examiner Nguyen is invited to contact Applicant's attorney by telephone in order to expeditiously conclude this prosecution.

Respectfully submitted,



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